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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/615,883	07/14/2000	Hiromichi Ohta	10110-3	6778

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EXAMINER

MCNEIL, JENNIFER C

ART UNIT

PAPER NUMBER

1775

DATE MAILED: 11/27/2002

14

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/615,883

Applicant(s)

OHTA ET AL.

Examiner

Jennifer McNeil

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 23 October 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 and 34-48 is/are pending in the application.
- 4a) Of the above claim(s) 1-16 and 48 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 34-47 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 11.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

*Election/Restrictions*

Applicant's election with traverse of Group II, claims 17-25, in Paper No. 5 is acknowledged. The traversal is on the ground(s) that the inventions are related and the search would involve substantial overlap and would not present a serious burden to the examiner. This is not found persuasive because the provisionally elected Group II article claims do not contain the process limitations recited in the non-elected Group I claims. Therefore, a complete search of the elected claims need not cover the subject matter in the non-elected claims. Additionally, MPEP 803 states that there are two criteria for restriction between patentably distinct inventions: (A) The inventions must be independent (see MPEP § 802.01, § 806.04, § 808.01) or distinct as claimed (see MPEP § 806.05 - § 806.05(I)); and (B) There must be a serious burden on the examiner if restriction is required (see MPEP § 803.02, § 806.04(a) - § 806.04(I), § 808.01(a), and § 808.02). MPEP further states that for purposes of the initial requirement, a serious burden on the examiner may be prima facie shown if the examiner shows by appropriate explanation either separate classification, separate status in the art, or a different field of search as defined in MPEP § 808.02. The requirement is still deemed proper and is therefore made FINAL.

Newly submitted claim 48 is directed to an invention that is independent or distinct from the invention originally claimed for the following reasons: the product may be made by a materially different process, as stated in paper No. 4.

Since applicant has received an action on the merits for the originally presented invention, this invention has been constructively elected by original presentation for prosecution on the merits. Accordingly, claim 48 is withdrawn from consideration as being directed to a non-elected invention. See 37 CFR 1.142(b) and MPEP § 821.03.

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*Claim Rejections - 35 USC § 112*

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 36 and 37 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 36 refers to mobility. Is this the mobility of the substrate or the film?

Claim 37 states, "produced for deposition". This phrase is not clear and renders the claim indefinite.

*Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 34-39, and 42-45 are rejected under 35 U.S.C. 102(b) as being anticipated by Nath et al (Thin Solid Films, 1980). Nath et al teach ITO film with an electrical resistivity of  $7 \times 10^{-5}$  ohms-cm. The film is deposited on a quartz substrate (page 464). While Nath et al do not specifically discuss the activity of Sn in the film or its structure, it is expected that since these characteristics would be inherent to the film since it exhibits the claimed resistivity. Quartz is a crystalline substrate. With regard to limitations of the method in which the film is formed, the method of producing the film does not provide structural limitation and does not provide patentable distinction over the prior art of record.

*Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 40 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nath et al (Thin Solid Films, 1980) in view of Kodan et al (US 5,539,546). Nath et al teach an ITO film deposited on glass or quartz as discussed above, but do not teach deposition in a pattern. Kodan et al teach an ITO film formed on a glass substrate patterned into a striped configuration to form electrodes. As it is taught by Kodan et al that it is known to pattern the ITO films formed on glass substrates, it would have been obvious to one of ordinary skill in the art at the time of the invention to form a pattern in the ITO film of Nath et al.

Claim 46 is rejected under 35 U.S.C. 103(a) as being unpatentable over Nath et al in view of Kwok et al (Thin Solid Films, November 1998). Nath et al teach ITO films on quartz substrates as discussed above, but do not teach additional substrates upon which the coating may be formed. Kwok et al teach that ITO films are formed well on (100) YSZ substrates, especially for forming crystalline ITO (column 2). As it is taught by Kwok et al that a crystalline YSZ substrate is advantageous for forming crystalline ITO films, it would have been obvious to one of ordinary skill in the art to form the crystalline ITO film of Nath on a (100) YSZ substrate.

Claims 46 and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nath et al in view of Kadota et al (US 6,437,363). Nath et al teach ITO films on quartz substrates as discussed above, but do not teach additional substrates upon which the coating may be formed. Kadota et al teach a photonic device including a sapphire substrate with a c-axis oriented ZnO film thereon. Kadota teaches the use of this substrate in conjunction with ITO electrodes, with the benefit of good crystallinity and

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simplification of the device (col. 2, lines 7-23). As it is taught by Kadota et al that a c-axis oriented ZnO coating on a substrate is advantageous for devices including ITO films, it would have been obvious to one of ordinary skill in the art to form the crystalline ITO film of Nath on substrate with a coating of c-axis oriented ZnO.

### *Response to Arguments*

Applicant's amendments have overcome the 112(1) and 112(2) rejections of record.

Applicant's arguments filed October 23, 2002 regarding the 102(b) and 103(a) rejections have been fully considered but they are not persuasive.

Applicant states that the graph of page 465 in Nath fails to disclose whether the film was deposited on glass or quartz. The rejection is based on the entire teaching of the reference, which includes the deposition of a low resistivity ITO film on a quartz substrate. Simply because Nath does not give a graph of the ITO deposited on quartz does not negate the teachings of the reference. Nath clearly states that the low resistivity ITO film is deposited may be deposited on quartz, and it for this reason that the reference is applied.

Regarding applicant's arguments that the film is not grown epitaxially, again applicant is referring to the figures of Nath. The figure of Nath may very well be of a deposition of the ITO onto an amorphous surface. However, since Nath clearly teaches the deposition of the ITO onto a crystalline surface (quartz), it is not clear how the final product would differ from that of the instant claims. Applicant has not shown that epitaxial growth is structurally different from an ITO film deposited onto a crystalline substrate, as taught by Nath.

Regarding the combination with Kwok, applicant's arguments are not clearly understood. Regarding the method limitations, it is not clear how they lend structural limitation to the final product. The reason for the combination of the references is to form the crystalline ITO film of Nath on a (100) YSZ substrate, not necessarily the method of the formation. Kwok teaches that ITO films are formed

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well on (100) YSZ substrates; especially for forming crystalline ITO, and it is from this teaching that the obviousness of the combination is derived (see page 4, first full paragraph).

*Conclusion*

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jennifer McNeil whose telephone number is 703-305-0553. The examiner can normally be reached on Monday through Friday, 9:30AM-6:00PM.


If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Deborah Jones can be reached on 703-308-3822. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.

Jennifer McNeil  
Examiner  
Art Unit 1775

  
JCM

November 22, 2002

  
DEBORAH JONES  
SUPERVISING PATENT EXAMINER